

**Appl. No.** : 10/674,694  
**Filed** : September 30, 2003

### **REMARKS**

Claims 1-9, 13-19, and 24-26 are pending in this application. Claims 10-12 and 20-23 have been canceled without prejudice as drawn to nonelected subject matter. Claims 1, 2, and 24 have been amended. Support for the amendments is found in the specification and claims as filed.

#### **Response to Restriction Requirement**

A Restriction Requirement has been imposed in this application. In connection therewith, it is asserted that the application claims the following inventions: Claims 1-19 and 24-26, drawn to methods of cleaning a filtration module, classified in class 210, subclass 636 (Group I); and Claims 20-23, drawn to a filtration system, classified in class 210, subclass 321.89 (Group II). Applicants hereby affirm their earlier election, without prejudice, of the invention of Group I, including Claims 1-19 and 24-26, drawn to methods of cleaning a filtration module, and cancel, without prejudice, Claims 20-23 as drawn to a non-elected invention.

#### **Claim Rejections - 35 U.S.C. § 112, first paragraph**

Claims 1-19 and 24-26 have been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors.

It is asserted in the Office Action that nowhere in the originally filed specification is it disclosed that the "feed liquid ... provided to the vessel at a rate sufficient to cause an overflow" comprises fouling material. Applicants assert that the claims are fully supported by the specification as filed.

The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Ralston Purina Co. v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)). The subject matter of the claim need not be described literally (*i.e.*, using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement. M.P.E.P. Section 2163.02.

Paragraph [0020] of the application as filed states: "Apart from draindown, other methods can be used for accumulated solids removal. These include ... overflow at the top of the tank by

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pumping feed into the base of the tank at regular intervals at a rate sufficient to cause overflow and removal of accumulated solids.” The terms “feed” and “feed liquid” are consistently employed throughout the specification to describe a liquid to be filtered, *i.e.*, a liquid comprising a fouling material. Other terms are used to describe other types of liquid, *e.g.*, “filtrate”, “permeate”, and “backwashing liquid”. Accordingly, one skilled in the art would understand that term “feed” unambiguously refers to a liquid comprising a fouling material. The specification therefore reasonably conveys to one skilled in the art that Applicants had possession at that time of the subject matter of Claim 1 which claims a method comprising, *inter alia*, “providing a feed liquid to the vessel, the feed liquid comprising a fouling material, wherein the feed liquid is provided to the vessel at a rate sufficient to cause an overflow.” Applicants respectfully request that the rejection be withdrawn.

**Claim Rejections - 35 U.S.C. § 112, first paragraph**

Claims 10-12 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. Although Applicants do not agree with the propriety of the rejection, these claims have been canceled to facilitate prosecution of the remaining claims. Applicants reserve the ability to pursue these claims, or similar claims, in one or more continuing applications. Accordingly, Applicants respectfully request that the rejection be withdrawn.

**Claim Rejections - 35 U.S.C. § 112, first paragraph**

Claims 24-26 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. It is asserted that an “overflow of a concentrated feed” is not described in the specification. Although Applicants do not agree with the propriety of the rejection, the claim has been amended to delete reference to “a concentrated feed”. Accordingly, Applicants respectfully request that the rejection be withdrawn.

**Claim Rejection - 35 U.S.C. §102(b)**

Claims 1, 3, 4, 6-9, and 13-19 have been rejected under 35 U.S.C. §102(b) as being anticipated by WO 96/07470. “A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference.” See, *e.g.*, *In re Paulsen*, 31 U.S.P.Q.2d 1671 (Fed. Cir. 1994). WO 96/07470 does not disclose every element of Applicants’ claims, and therefore cannot be considered as an anticipating reference under 35 U.S.C. § 102(b).

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Pending independent Claim 1 (and its corresponding dependent Claims 3, 4, 6-9, and 13-19) recite a method of method for filtering a feed liquid comprising, *inter alia*, a step of providing a membrane module, “wherein the membrane module is contained within a separate vessel, and wherein the module is positioned vertically in the vessel,” and a step of “removing the accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel.” WO 96/07470 does not disclose either a membrane module that is contained within a separate vessel and that is positioned vertically in the vessel, or removing the accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel.

WO 96/07470 is directed to a hollow fiber cross-flow concentrator which consists of hollow fibers encased in a shell that is sealed to atmosphere and pressurized during filtration. Because the shell is pressurized, no specific orientation of the membrane module during filtration is necessary. In operation, feed suspension and some of the rejected species are removed through an outlet in the shell, not by overflow at the top of a separate vessel containing the membrane module. In contrast, Claim 1 recites a membrane module contained within a separate vessel, wherein membrane module is positioned vertically in the vessel. As discussed in paragraph [0003] of the application as filed, a configuration such as is recited in Claim 1 is distinguished from that of pressurized systems.

Accordingly, Applicants respectfully request that the rejection be withdrawn.

**Claim Rejection - 35 U.S.C. §102(b)**

Claims 1, 3, 4, 6-9, and 13-19 have been rejected under 35 U.S.C. §102(b) as being anticipated by Cote et al. (U.S. 5,248,424). Cote et al. does not disclose every element of Applicants’ claims, and therefore cannot be considered as an anticipating reference under 35 U.S.C. § 102(b).

Pending independent Claim 1 (and its corresponding dependent Claims 3, 4, 6-9, and 13-19) recite a method of method for filtering a feed liquid comprising, *inter alia*, steps of “providing a feed liquid to the vessel, the feed liquid comprising a fouling material, wherein the feed liquid is provided to the vessel at a rate sufficient to cause an overflow”, “applying a transmembrane pressure to the membranes in the module, whereby a filtrate passes through pores in the membranes, thereby producing, in the vessel, a concentrated feed comprising accumulated

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solids,” and “removing the accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel”

Cote et al. does not disclose removing the accumulated solids from the vessel. Cote et al. at col. 22, lines 20-24, discloses a filtration system wherein, during filtration, substrate from the tank containing the membrane module overflows into a substrate tank and is then recycled to the tank containing the membrane modules. The recycled substrate described in Cote et al. corresponds to a “concentrated feed comprising accumulated solids.” By recycling such a concentrated feed, accumulated solids from the vessel are reintroduced into the vessel. In contrast, in Applicants’ method as recited in Claim 1, a feed liquid is introduced into the vessel, and a concentrated feed comprising accumulated solids is removed from the vessel, whereby solids are removed from the vessel. Neither accumulated solids from the vessel, nor concentrated feed, is returned to the vessel in the method recited in Claim 1.

Accordingly, Applicants respectfully request that the rejection be withdrawn.

**Claim Rejection - 35 U.S.C. §103(a)**

Claim 5 has been rejected under 35 U.S.C. §103(a) as being obvious over WO 96/07470 in view of Ohkubo et al. (U.S. 4,876,006). To articulate a *prima facie* case of obviousness under 35 U.S.C. §103(a), the PTO must, *inter alia*, cite prior art that teaches or suggests all the claimed limitations. *In re Royka*, 490 F.2d 981 (C.C.P.A. 1974).

As discussed above, WO 96/07470 does not disclose either a membrane module that is contained within a separate vessel and that is positioned vertically in the vessel, or removing the accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel. Ohkubo et al. neither teaches nor suggests removing accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel.

Because WO 96/07470 and Ohkubo et al. either alone or in combination, do not teach or suggest removing accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel, a *prima facie* case of obviousness cannot be made. Accordingly, Applicants respectfully request that the rejection be withdrawn.

**Claim Rejection - 35 U.S.C. §103(a)**

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Claim 2 has been rejected under 35 U.S.C. §103(a) as being obvious over Cote et al. in view of Mahendran et al. (U.S. 5,639,373).

As discussed above, Cote et al. does not disclose removing the accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel. Mahendran et al. neither teaches nor suggests removing accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel.

Because Cote et al. and Mahendran et al., either alone or in combination, do not teach or suggest removing accumulated solids from the vessel, wherein the accumulated solids are carried out of the vessel in the overflow therefrom at the top of the vessel, a *prima facie* case of obviousness cannot be made. Accordingly, Applicants respectfully request that the rejection be withdrawn.

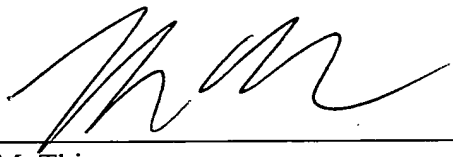
#### **Conclusion**

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number below.

Respectfully submitted,

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